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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT-25468	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IT 03/00576	International filing date *(day/month/year)* 26.09.2003	Priority date *(day/month/year)* 02.10.2002
International Patent Classification (IPC) or both national classification and IPC F02M27/04		
Applicant TURI, Carlo		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
07.04.2004	03.11.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Dorfstätter, M Telephone No. +49 89 2399-8133

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT 03/00576

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-7 as published

Claims, Numbers

1-17 received on 21.10.2004 with letter of 20.10.2004

Drawings, Sheets

1/10-10/10 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☒ the claims, Nos.: 18

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-17
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-17
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-17
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:
D1: US 4 519 919 A

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document) a magnetic conditioning device for treatment of fuel. It comprises a series of magnets.

The subject-matter of claim 1 differs from this known device in that the fuel is deviated by a wall close to the inlet. In D1 the flow of fuel is, instead of being deviated, split in two flows which are in turn rotated around a longitudinal axis. Imparting a rotation can, however, not be regarded a "deviation".

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to improve the conditioning of the fuel.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: Deviating the flow of fuel and providing several opposed magnetic elements along the deviation path is regarded not obvious in view of the prior art.

Claims 2-17 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Industrial applicability is regarded obvious.

CLAIMS

1. Magnetic conditioning device for diesel engine fuel characterised in that it comprises a housing element, placed along the fuel feeding line, having a fuel inlet and a fuel outlet, and providing a wall in correspondence of the inlet to deviate the inlet fuel, and an obliged path for the fuel, being provided at least two opposed magnetic elements, along said obliged path, inducing a magnetic field on the flowing fuel.

2. Magnetic conditioning device for diesel engine fuel according to claim 1, characterised in that said device provides a central cylindrical hub.

3. Magnetic conditioning device for diesel engine fuel according to claim 2 or 3, characterised in that said obliged path has such a shape to ensure a long passage of the fuel within the device.

4. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that the magnetic field is created by permanent magnets.

5. Magnetic conditioning device for diesel engine fuel according to claim 4, characterised in that said permanent magnets are comprised of neodymium magnets, having a protective anti-corrosion coating.

6. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims 1 - 3, characterised in that said permanent magnets are comprised of ferrite.

7. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that two permanent magnets are provided mounted opposed, said magnets having an opposed polarisation on the faces faced toward the fuel flow.

8. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims 1 - 6, characterised in that said magnetic elements are comprised of permanent magnets provided on two ferromagnetic opposed elements.

9. Magnetic conditioning device for diesel engine fuel according to claim 8, characterised in that said permanent magnets are

comprised of integral tablets or rings, having an opposed polarisation of the faces faced toward the fuel flow.

10. Magnetic conditioning device for diesel engine fuel according to claim 8, characterised in that said permanent magnets are comprised of integral tablets or rings, having an alternate polarisation between the permanent magnets placed side by side on the same ferromagnetic material, being provided permanent magnets having an opposed polarity respectively opposed faced each other.

11. Magnetic conditioning device for diesel engine fuel according to claim 8, 9 or 10, characterised in that said permanent magnets are flush with the ferromagnetic material or projecting with respect to the same.

12. Magnetic conditioning device for diesel engine fuel according to claim 8 or 9, characterised in that said permanent magnetic elements have a horseshoe shape.

13. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that said device provides a lower portion and an upper portion, or lid, removably coupled each other.

14. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that projecting elements are provided, preferably metallic elements provided inside the container.

15. Magnetic conditioning device for diesel engine fuel according to claim 14, characterised in that said projecting elements are provided on one or both the inner surfaces of the device.

16. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that it is provided an atmosphere vent.

17. Magnetic conditioning device for diesel engine fuel according to one of the preceding claims, characterised in that said device is comprised of a central body and two lids, respectively an upper and a lower lid.